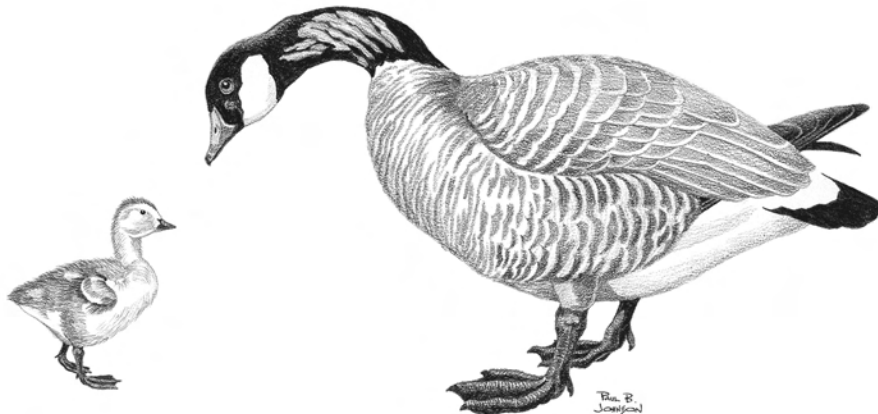


*California Department of Fish and Game  
Avian Influenza Supplemental Progress Report*

Wildlife Investigations Laboratory  
California Department of Fish and Game  
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*October 2007*



# Executive Summary

This supplement has been prepared to summarize and update information provided in the *California Department of Fish and Game Surveillance and Response Plan for the Occurrence of Highly Pathogenic Avian Influenza in Wild Birds*.

Included in this supplement are a brief summary of last year's avian influenza (AI) 2006-2007 sampling season and the current 2007-2008 sampling effort. Also included are the procedural changes that have been implemented since last season. During the 2006-2007 season samples were collected from both live-bird and hunter-harvest birds between April 2006 and March 2007. A cloacal swab was obtained from each bird and submitted to a diagnostic laboratory for AI testing. The laboratory then pooled those samples, combining a number of individual samples into one sample for the actual AI testing. Environmental sampling also took place during this time and involved collecting waterfowl feces from key wildlife areas on a monthly basis. Environmental samples were pooled by the laboratory.

This season, two swabs will be obtained from each live-bird and hunter-harvest bird in accordance with all three sampling agency protocols (USFWS, USDA, CDFG). An oropharyngeal (oral) and cloacal swab will be obtained from each bird sampled and combined into one vial for AI testing. Samples will not be pooled this season; each sample will be tested individually for AI. Live-bird sampling will take place during routine banding programs. Hunter-harvest sampling will be conducted monthly October through January, concurrent with the waterfowl hunting season.

There will be no environmental sampling conducted by California Department of Fish and Game (CDFG) personnel during the 2007-2008 season. This decision was based on information derived from last season. It was determined that environmental sampling provided little information for the amount of effort spent collecting the samples. Shorebird sampling also has been phased out for this season. Logistically shorebird sampling was too labor intensive to conduct on the regular basis needed for AI surveillance. As such, AI sampling for this season will focus on other AI priority species such as waterfowl.

This season, more effort will be placed on morbidity and mortality (M & M) event surveillance and response. Each region will conduct structured, systematic surveys in primary waterbird areas to increase the detection of sick and dead birds. Effort will be quantified by recording time spent conducting each survey and distance traveled. Data will be compiled into a database maintained by Wildlife Investigations Laboratory (WIL) personnel. In the event of a M & M event, carcasses will be collected and submitted to a diagnostic laboratory for necropsy to determine cause of death and AI status.

Specific details regarding the 2006-2007 sampling totals are provided in the following sections: II. Summary of 2006-2007 AI Sampling Season, A. Live-Bird, B. Hunter-Harvest, C. Environmental Sampling, and D. M & M events. Details regarding the current 2007-2008 sampling goals are provided in Section II. Live-Bird and Hunter-Harvest 2007-2008 Season Sampling Goals, A. Live-Bird and B. Hunter-Harvest Sampling. Current sampling totals can be found in Section III. Summary of 2007-2008 AI Sampling Season, A. Live Bird, B. Hunter-Harvest, and C. M & M events. See Section IV. for more details regarding the enhanced M & M surveillance approach.

## I. Summary of 2006-2007 AI Sampling Season

### A. Live-Bird Sampling Goals and Actual Numbers Completed

Efforts were made to sample from both waterfowl and shorebirds during routine banding programs. A total of 2,810 samples from live-birds were collected and submitted for AI testing during the 2006-2007 season. No HPAI H5N1 was detected.

Species	Location	Cooperators	Fund Source	Sampling Goals	No. Birds Sampled
NOPI	Klamath Basin NWR	USFWS	USFWS	400	220
	Delevan NWR	CDFG, USFWS	USDA, CDFG, USFWS	700	655
	Tulare Basin/Mendota WA	CWA	USFWS	200	197
GADW	Sacramento NWR	CDFG	USDA	0	4
MALL	Various	USDA, CWA	USDA	200	200
	Mendota WA	CDFG	USDA, CDFG	50	50
	Humboldt Bay NWR/ Fay Slough WA	CDFG	USDA, CDFG	50	50
	Sacramento NWR	CDFG	USDA	0	72
	Shasta Valley WA/ Klamath Basin WA	CDFG	USDA, CDFG	50	44
	Butte Valley WA	CDFG	USDA, CDFG	50	0
ACGO	San Joaquin NWR	CDFG, USFWS	USDA, CDFG	200	200
	San Joaquin NWR	CDFG, USFWS	USFWS	100	164
WESA, DUNL, LBDO, LESA, SEPL, RUTU, SBDO	Various, Coastal and Inland CA	USGS, PRBO	USFWS	1600	954

NOPI: Northern Pintail, GADW: Gadwall, MALL: Mallard, ACGO: Aleutian Canada Goose, WESA: Western Sandpiper, DUNL: Dunlin, LBDO: Long-billed Dowitcher, LESA: Least Sandpiper, RUTU: Rudy Turnstone, SBDO: Short-billed Dowitcher; WA: Wildlife Area, NWR: National Wildlife Refuge, CA: California, USFWS: United States Fish and Wildlife Service, CDFG: California Department of Fish and Game, USDA: United States Department of Agriculture, USGS: United States Geological Survey, PRBO: Point Reyes Bird Observatory, CWA: California Waterfowl Association

## B. Hunter-Harvest Sampling Goals and Actual Numbers Completed

AI sampling of hunter-harvest birds was accomplished at hunter-check stations during waterfowl hunting season from mid-October thru January. A total of 2,595 samples from hunter-harvest birds were collected and submitted for AI testing during the 2006-2007 season. No highly pathogenic avian influenza (HPAI) H5N1 was detected.

Species	Location	Cooperators	Fund Source	Sampling Goals	No. Birds Sampled
NOPI	Delevan NWR	CDFG	USDA, CDFG	30	30
	Sutter NWR	CDFG	USDA, CDFG	30	30
	Gray Lodge WA	CDFG	USDA, CDFG	40	40
	Little Dry Creek WA	CDFG	USDA, CDFG	30	30
	Grizzly Island WA	CDFG	USDA, CDFG	30	30
	Yolo WA	CDFG	USDA, CDFG	20	20
	North Grasslands WA/Merced NWR	CDFG	USDA, CDFG	20	20
	Volta WA	CDFG	USDA, CDFG	20	20
	Mendota WA	CDFG	USFWS, CDFG	30	30
	Imperial WA, Wister Unit	CDFG	USFWS, CDFG	40	30
NOPI, AGWT, AMWI, NOSH	Delevan NWR	CDFG	CDFG	200	192
	Sutter NWR	CDFG	CDFG	200	194
	Gray Lodge WA	CDFG	CDFG	200	195
	Little Dry Creek WA	CDFG	CDFG	200	196
	Grizzly Island WA	CDFG	CDFG	200	200
	Yolo WA	CDFG	CDFG	200	161
	North Grasslands WA/Merced NWR	CDFG	CDFG	200	150
	Volta WA	CDFG	CDFG	200	150
	Mendota WA	CDFG	CDFG	200	200
	Imperial WA, Wister Unit	CDFG	CDFG	200	202
BLBR	Humboldt Bay NWR	USFWS, USDA	USFWS, USDA	75	75
	Morro Bay SP	CDFG, USDA	USFWS, CDFG	125	125
GWFG	Delevan NWR	CDFG	USDA, CDFG	200	201
ACGO	Various, Northwestern CA	USFWS, USDA	USFWS, CDFG	25	49
	Various, Central Valley CA	CDFG	CDFG	25	25

NOPI: Northern Pintail, AGWT: American Green-winged Teal, AMWI: American Wigeon, NOSH: Northern Shoveler, BLBR: Black Brant, GWFG: Greater White-fronted Goose, ACGO: Aleutian Canada Goose

### C. Environmental Sampling Goals and Actual Numbers Completed

Environmental sampling was conducted at a number of different wildlife areas throughout the state. Samples were collected and submitted monthly to a diagnostic laboratory for analysis. No HPAI H5N1 was detected in these samples.

Location	Cooperators	Fund Source	Sampling Goals	No. Samples Collected
Shasta Valley WA	CDFG for USDA	USDA, CDFG	100	75
Honey Lake WA	CDFG for USDA	USDA, CDFG	100	55
Grizzly Island WA	CDFG for USDA	USDA, CDFG	100	120
Gray Lodge WA	CDFG for USDA	USDA, CDFG	100	100
Howard Slough WA	CDFG for USDA	USDA, CDFG	100	100
Yolo WA	CDFG	CDFG	150	150
Mendota WA	CDFG	CDFG	150	150
San Jacinto WA	CDFG	CDFG	120	120
Eel/Elk River WA	CDFG	CDFG	150	150
North Grasslands WA	CDFG	CDFG	150	150
Imperial WA	CDFG	CDFG	150	150

### D. Morbidity and Mortality Events (February 2006- March 2007)

From February 2006 to March 2007 a total of 69 M & M events were investigated in 23 different counties. The majority of the cases investigated included various waterfowl species, such as mallard, northern pintail, northern shoveler, American wigeon, ruddy duck, and snow geese that died during avian cholera or avian botulism outbreaks. All HPAI H5N1 results were negative.

## II. Live-Bird and Hunter-Harvest 2007-2008 Season Sampling Goals

### A. Live-Bird Sampling

Species	Location	Cooperators	Fund Source	Sampling Goals
MALL	Various	USDA, CWA	USDA	150
	Mendota WA	CDFG	USDA, CDFG	60
	Humboldt Bay NWR	CDFG, USFWS	USDA, CDFG	60
GADW	Klamath Basin NWR	CDFG, USFWS	USDA, CDFG	110
	Klamath Basin NWR	USFWS	DOI	60
NOPI	Klamath Basin NWR	USFWS	DOI	100
	Sacramento NWR Complex	CDFG, USFWS	DOI, CDFG	500
	Sacramento NWR Complex	CDFG	CDFG	400
	Sacramento NWR Complex	USDA	USDA	50
ACGO	San Joaquin NWR	CDFG	DOI, CDFG	400

MALL: Mallard, GADW: Gadwall, NOPI: Northern Pintail, ACGO: Aleutian Canada Goose

## B. Hunter-Harvest Sampling

Species	Location	Cooperators	Fund Source	Sampling Goals
NOPI, AGWT, AMWI, NSHO	Delevan NWR	CDFG	DOI, CDFG	400
	Sutter NWR	CDFG	DOI, CDFG	200
	Gray Lodge WA	CDFG	CDFG	400
	Little Dry Creek WA	CDFG	CDFG	400
	Grizzly Island WA	CDFG	USDA, CDFG	400
	Yolo WA	CDFG	CDFG	200
	North Grasslands WA	CDFG	USDA, CDFG	200
	Los Banos WA	CDFG	USDA, CDFG	145
	Mendota WA	CDFG	DOI, CDFG	350
	Imperial WA, Wister Unit	CDFG	CDFG	200
GWFG	Delevan NWR	CDFG	DOI, CDFG	200

NOPI: Northern Pintail, AGWT: American Green-winged Teal, AMWI: American Wigeon, NOSH: Northern Shoveler, GWFG: Greater White-fronted Goose

## III. Summary of 2007-2008 AI Sampling Season, in progress

### A. Live-Bird Sampling

The live-bird AI sampling will be concluded by October 20th, the start of the waterfowl hunting season. Live-bird sampling has taken place in Klamath Basin NWR, Humboldt Bay NWR, and Mendota WA. HPAI H5N1 results have returned negative for Klamath NWR and Humboldt Bay NWR. The samples from Mendota WA unfortunately had to be discarded due to inappropriate storage after sampling, rendering them un-testable. As such, 60 additional samples will be obtained during hunter-harvest sampling to make up these numbers. In progress are the NOPI captures at Delevan NWR, where as of October 11th, 523 of the 900 birds have been sampled; all HPAI H5N1 tests have returned negative thus far. The Aleutian Canada Geese captures will be conducted in December, when the birds will be present in large numbers. The sampling goal for ACGO is 400 birds.

Species	Location	Cooperators	Fund Source	No. Birds Sampled
MALL	Mendota WA	CDFG	USDA, CDFG	0a
	Humboldt Bay NWR	CDFG, USFWS	USDA, CDFG	60
GADW	Klamath Basin NWR	CDFG, USFWS	USDA, CDFG	110
	Klamath Basin NWR	USFWS	DOI	61
NOPI	Delevan NWR	CDFG, USFWS	DOI, CDFG	123b
	Delevan NWR	CDFG	CDFG	400b
ACGO	San Joaquin NWR	CDFG	DOI, CDFG	0c

MALL: Mallard, GADW: Gadwall, NOPI: Northern Pintail, ACGO: Aleutian Canada Goose, a samples discarded, b in progress, number sampled as of 11 October 2007, c sampling scheduled in December 2007



## **B. Hunter-Harvest Sampling**

As previously mentioned, waterfowl hunting season begins October 20th. Hunter-harvest AI sampling will begin at this time and continue monthly through January 2008. Initial AI sampling supplies are currently being distributed and will continue monthly thereafter through January.

## **C. Morbidity and Mortality Events (April 2007-current)**

Since April 2007, there have been a total of thirteen M & M events investigated in eight different counties. Species involved included, various waterfowl species, burrowing owls, and double-crested cormorants. Most of the waterfowl died during avian botulism outbreaks. The cause of death for the burrowing owls was undetermined and Exotic Newcastle Disease resulted in the deaths of the double-crested cormorants. All HPAI H5N1 test results returned negative.

# **IV. California Department of Fish and Game Morbidity and Mortality Regional Surveillance Effort**

## **A. Morbidity and Mortality Regional Surveillance**

Morbidity and mortality (M & M) events are believed to offer the earliest and highest probability of detecting Highly Pathogenic Avian Influenza (HPAI) H5N1 if introduced by wild migratory birds into the United States (U.S. Strategic Plan, March 2006). This is due to the fact that HPAI H5N1 has affected over 60 species of wild birds in Asia, Europe, and Africa (USGS-NWHC, June 2007) and infection generally results in mortality. Affected species primarily are waterfowl and various other water birds. As such, the California Department of Fish and Game (CDFG) will make a concerted effort to increase M & M surveillance of wild birds as part of the HPAI H5N1 early detection strategy. The aim is to increase detection and response to M & M events by establishing a protocol to increase the consistency and reporting of M & M surveys statewide. This process requires the development of structured, systematic survey routes encompassing wildlife areas and adjacent private lands throughout the state.

Personnel in each region were requested to develop initial plans to routinely survey state wildlife areas and areas with known high concentrations of priority bird species in their region in order to enhance the detection of M & M events in wild birds. The Wildlife Investigations Laboratory (WIL) has designed the *CDFG Wild Bird Mortality Surveillance* data sheet (Appendix 1) to quantify the effort of each survey area. Survey routes will focus on areas where waterfowl and other water birds congregate and special attention will be shown to detect illness or death in bird species of primary and secondary concern for infection with HPAI H5N1 (see Section II).

In addition to the M & M surveys conducted by CDFG personnel, increased attention will be given to the reporting of dead birds by the general public. This will be accomplished through the Dead Bird Surveillance Program (see Section III. B). The Dead Bird Surveillance Program was developed and is maintained by the California Department of Public Health (CDPH) to gather dead bird observations reported by the public and designed as an early warning system of West Nile Virus activity in California. The reports are then forwarded to WIL and other key personnel within each region. The decision can then be made to further investigate a specific report. Again, particular attention will be paid to mortality occurring in any of the designated focal species for HPAI H5N1 detection.

## B. Focal Species

Primary Candidates	Family Cygnus (swans)	Trumpeter swan
		Tundra swan
		Feral swan
	Subfamily Aythyine (diving ducks)	Canvasback
		Greater and lesser scaup
		Redhead
		Ring-necked duck
Secondary Candidates	Geese	Greater white-fronted goose (closest relative of bar-headed geese)
	Dabbling ducks	Wood duck
		Northern shoveler
		Northern pintail
		American green-winged teal
		American and Eurasian wigeon
		Mallard
		Gadwall
	Waterbirds	Hérons
		Egrets
		Grebes
		Cormorants
	Order Charadriiformes	Gulls (relatives of laughing, black-headed, and brown-headed gulls)
		Terns
		Shorebirds

## C. Detection of Morbidity and Mortality Events

### 1. CDFG Wild Bird Mortality Surveillance

Morbidity and mortality surveys will be conducted systematically and the intervals between surveys will vary depending upon access and fluctuations in bird concentrations. The data sheet utilized for the surveys will calculate time spent completing each transect and distance traveled, quantifying effort. One data sheet is to be completed for each transect. Numbers of sick or dead birds are recorded, zero counts also are recorded. Survey data sheets are faxed to the WIL, ideally within 48 hours of completing the survey if incidents of significance are identified. If no M & M events are noted, reports are to be faxed to the WIL monthly. If a significant M & M event is observed, the CDFG employee contacts WIL staff to determine if laboratory submissions are warranted. If it is determined that specimens will be sent to a diagnostic lab for analysis, a *Wildlife Disease Incident and Specimen Submission Form* (Appendix 2) is completed and faxed to WIL and then submitted with the specimens to the lab.



## 2. CDPH Dead Bird Surveillance Program

Apart from the systematic M & M surveillance reports that will be generated from each region, dead birds also may be reported via a number of other routes. Dead birds often are first noted by members of the general public. To facilitate the reporting and subsequent investigation of dead bird observations made by the public, the Dead Bird Surveillance Program was established by the CDPH. The Dead Bird Surveillance Program was originally designed to monitor West Nile Virus incidences in California by compiling dead bird reports into the Dead Bird Database. The system has recently been modified to notify CDFG personnel via e-mail of M & M events involving:

- 1) Deaths of  $\geq 5$  individuals
- 2) Deaths of AI priority species

Reports to the Dead Bird Surveillance Program are submitted by four means:

- 1) The public can call 1-877-WNV-BIRD (1-877-968-2473) to report a dead bird; the report is then entered into the Dead Bird Database
- 2) The public can enter a report online at [http://westnile.ca.gov/bird\\_report\\_id.htm](http://westnile.ca.gov/bird_report_id.htm)
- 3) The public can report the incident to government resource/wildlife personnel, who will then fill out a *DFG Dead Bird Questionnaire Form* (Appendix 3) which in turn is submitted to WIL for review and input into the Dead Bird Database
- 4) If the event is directly observed by CDFG personnel (apart from the formal M & M surveys), they will fill out the *Dead Bird Questionnaire Form* and submit to WIL for review and input into the Dead Bird Database.

After reports are entered into the Dead Bird Database, e-mails are generated and distributed to the CDFG AI contacts in each region. The decision will then be made by regional personnel or WIL personnel to further investigate specific dead bird reports.

A *Dead Bird Questionnaire Form* (Appendix 3) should be completed for all M & M events that fit the following criteria:

- 1)  $\geq 5$  dead wild birds within a short period of time (days) of the same or different species
- 2) Single death of an AI priority migratory bird species (waterfowl & shorebirds)
- 3) Sick wild birds exhibiting clinical signs of respiratory disease (e.g. coughing, sneezing, difficulty breathing) or neurological symptoms
- 4) Any unusual mortality event as determined by the regional biologist in consultation with the WIL.

The questionnaire is then sent to the WIL for review. Regional personnel and WIL will decide if further investigation is warranted. If it is determined that specimens should be collected and submitted to a diagnostic lab, a *Wildlife Disease Incident and Specimen Submission Form* should be completed and accompany the specimens to the lab, as well as faxed to WIL.

## D. Specimen Collection

### 1. Communication and Event Response

The WIL held an all-day AI training workshop on 28 August 2007. During this workshop, presentations were conducted on avian diseases in wild birds, communications, AI surveillance in wild birds, personnel protection equipment (PPE) requirements, reporting, investigation, and response to avian disease events, and sample/specimen collection, packaging, and shipment guidelines. The AI contacts in each region attended the workshop and received an *Avian Diseases Workshop* manual that provides details regarding the above items (see Appendix 4: workshop agenda and Appendix 5: manual table of contents).

The actual response to an M & M event will be dependent upon multiple factors, including species of bird(s) affected, number of birds affected, and availability of fresh carcasses suitable for necropsy. The *Avian Diseases Workshop* manual can provide guidance for completing the *Wildlife Disease Incident and Specimen Submission Form*. Appropriate personnel protective equipment (PPE) shall be worn for specimen collection. The degree of PPE worn will be dependent upon the likelihood of HPAI H5N1 being present in California wild birds (see *Avian Diseases Workshop* manual for protocol). The CDFG contact person will discuss the details of the event with WIL and a decision will be made as to which laboratory the specimens will be sent for diagnostics. This decision will be based upon the event location and the potential significance of results. Instructions for packaging and shipment of specimens are discussed in the *Avian Diseases Workshop* manual.

### 2. Laboratory Information

The California Animal Health and Food Safety Laboratory System (CAHFS), with the University of California, Davis and the United States Geological Survey's National Wildlife Health Center (NWHC) will be utilized to determine cause of death and AI status of carcasses submitted for necropsy resulting from M & M events. CAHFS has labs in Davis, Turlock, Fresno, and San Bernardino and accept all avian submissions, including carcasses. The NWHC also will accept avian carcasses from mortality events. WIL must approve all lab submissions prior to shipment to a diagnostic lab.

CAHFS, Davis  
University of California,  
Davis  
W. Health Sciences Dr.  
Davis, CA 95616  
Phone (530) 752-8700  
Fax (530) 752-6253

CAHFS, Fresno  
University of California,  
Davis  
18830 South Orange Avenue  
Fresno, CA 93725  
Phone (559) 498-7740  
Fax (559) 485-8097

CAHFS, Turlock  
University of California,  
Davis  
1550 N Soderquist Dr.  
Turlock, CA 95381  
Phone (209) 634-5837  
Fax (209) 667-4261

CAHFS, San Bernardino  
University of California,  
Davis  
105 West Central Avenue  
San Bernardino, CA 92408  
Phone (909) 383-4287  
Fax (909) 884-5980

NWHC  
6006 Schroeder Road  
Madison, WI 53711-6223  
Phone (608) 270-2400  
Fax (608) 270-2415

### E. Morbidity and Mortality Kit Distribution

WIL has assembled Morbidity and Mortality Kits that are to be utilized in a M & M event where it has been determined that carcasses will be collected and submitted to a diagnostic laboratory. These kits have been distributed to CDFG personnel in each region (Figure 1). In the occurrence of a M & M event, the CDFG responder has the supplies necessary to submit bird carcasses to the specified lab for necropsy and AI testing. The goal is to submit up to five fresh carcasses to the lab to identify cause of death and AI status. The kits consist of a Styrofoam cooler within a cardboard box and contain datasheets, bar codes for sample identification, plastic bags, ice packs, and shipping labels. When a kit is utilized, WIL supplies the region with a new kit. M & M Kits also have been distributed to numerous, permitted wildlife rehabilitators throughout the state.

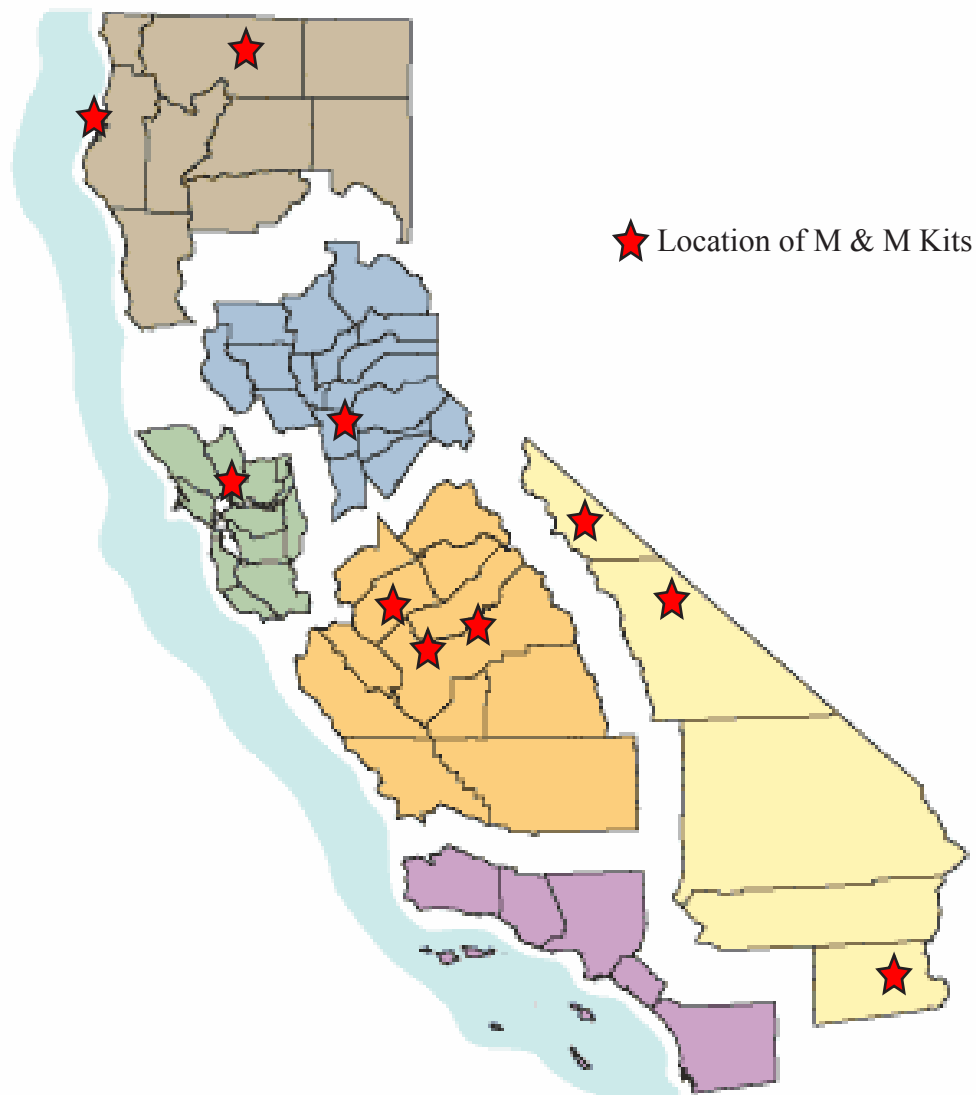


Figure 1. Morbidity and Mortality Kit Distribution

## V. Morbidity and Mortality Surveillance by Region

### A. Region 1: Northern Region

The Region 1 approach will consist of bi-monthly or monthly surveys at wildlife areas throughout the region (Figure 2). Most of the areas to be surveyed include areas where previous die-off events have occurred due to avian cholera or botulism. In Lassen County surveys will be conducted at Honey Lake Wildlife Area (WA), Levitt Lake, Eagle Lake, and Ash Creek WA. In Siskiyou County, Butte Valley WA and Shasta Valley WA will have established survey routes. In Del Norte County a survey will be conducted at Lake Earl WA and in Shasta County surveys will take place at Mouth of Cottonwood Creek WA and Battle Creek WA. In Humboldt County surveys will encompass Freshwater Lagoon, Big Lagoon WA, Mad River Slough WA, Fay Slough WA, Eel River WA and the Eel River bottomlands.

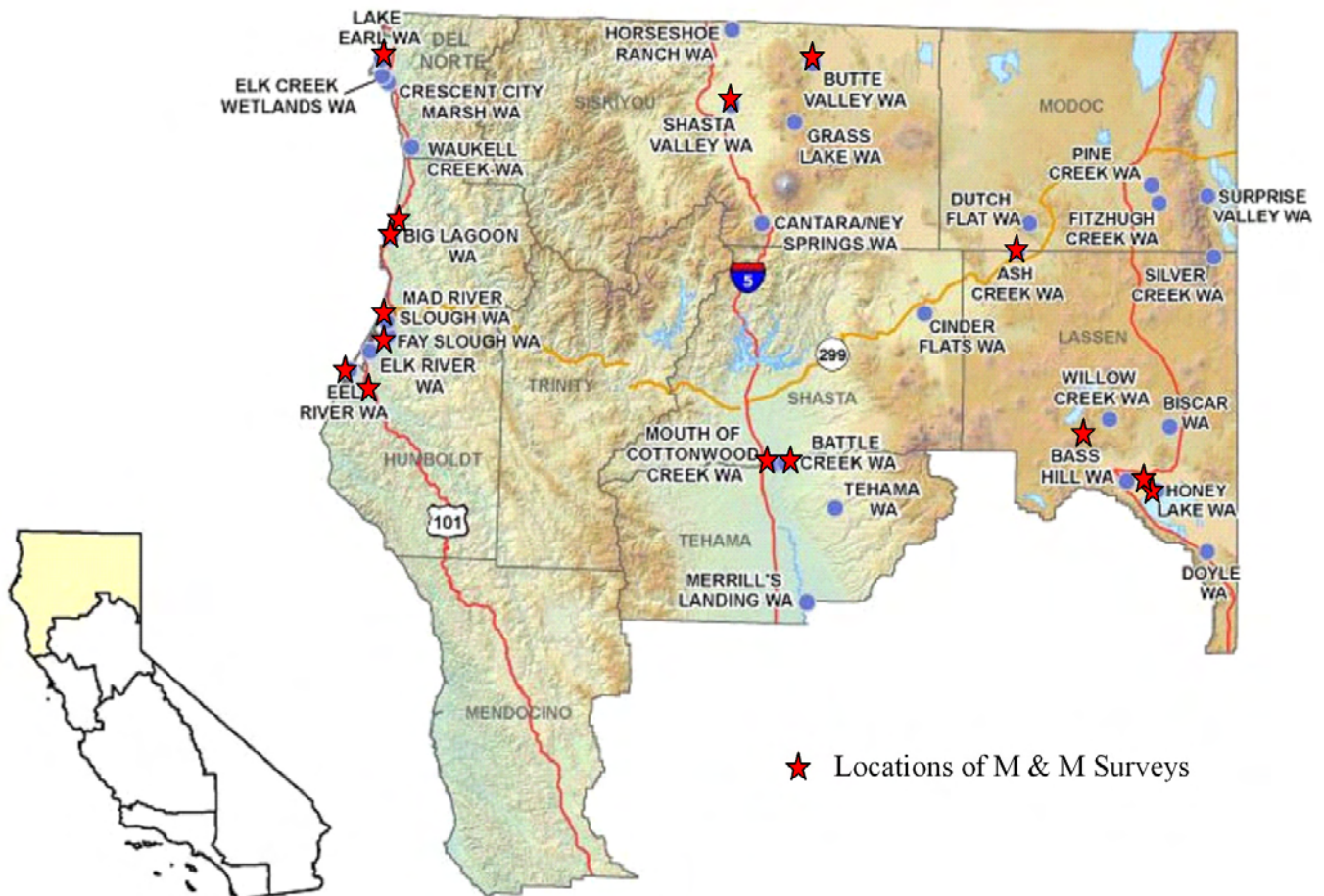


Figure 2. Region 1: Northern Region



## B. Region 2: North Central Region

The Region 2 surveys will encompass three primary water bird areas within the region (Figure 3). These areas include 1) Sacramento NWR, south to Delevan NWR, 2) Gray Lodge WA and surrounding areas in north Sutter County, and 3) Upper Butte Basin WA north towards the Richvale area. Surveys will be conducted twice weekly from a vehicle.



Figure 3. Region 2: North Central Region

Figure 3. Region 2: North Central Region

### C. Region 3: Bay Delta Region

The Region 3 approach will involve surveys covering the main wildlife areas in the region, including Grizzly Island WA, Yolo Bypass WA, and portions of the Delta (Figure 4). Surveys will be conducted once weekly at Grizzly Island WA, including the Joice Island Unit. An attempt also will be made to gather information regarding M & M events occurring in surrounding private hunt club property. Surveys in the Yolo Bypass WA and surrounding private wetlands will be conducted by road transects. The surveys in the Delta will include transects conducted via driving routes through Roberts Island, Lower Jones Tract, Bacon Island, Palm Tract, Holland Tract, Mandeville Island, Webb Tract, Bradford Island, Twitchell Island, Tyler Island, Staten Island, Canal Ranch, Brack Tract, Terminous Tract, King Island, and Bishop Tract.



Figure 4. Region 3: Bay Delta Region

★ Locations of M & M Surveys



#### Region 4: Central Region

The Region 4 approach will consist of surveys in four major wildlife areas throughout the region (Figure 5). These areas are Kern, Mendota, Los Banos, and Monterey. The Kern surveys will be centered around Kern NWR and will ideally include a number of private duck clubs, and the Kern Water Bank. A transect will be established at Mendota WA and possibly include some surrounding duck clubs. The surveys in the Los Banos area will include transects at the North Grasslands WA (China Island, Salt Sough, and Mud Slough/Gadwall Units), Volta WA, Los Banos WA, San Luis Reservoir WA, and O'Neill Forebay WA. Survey locations in the Monterey area are still to be determined.

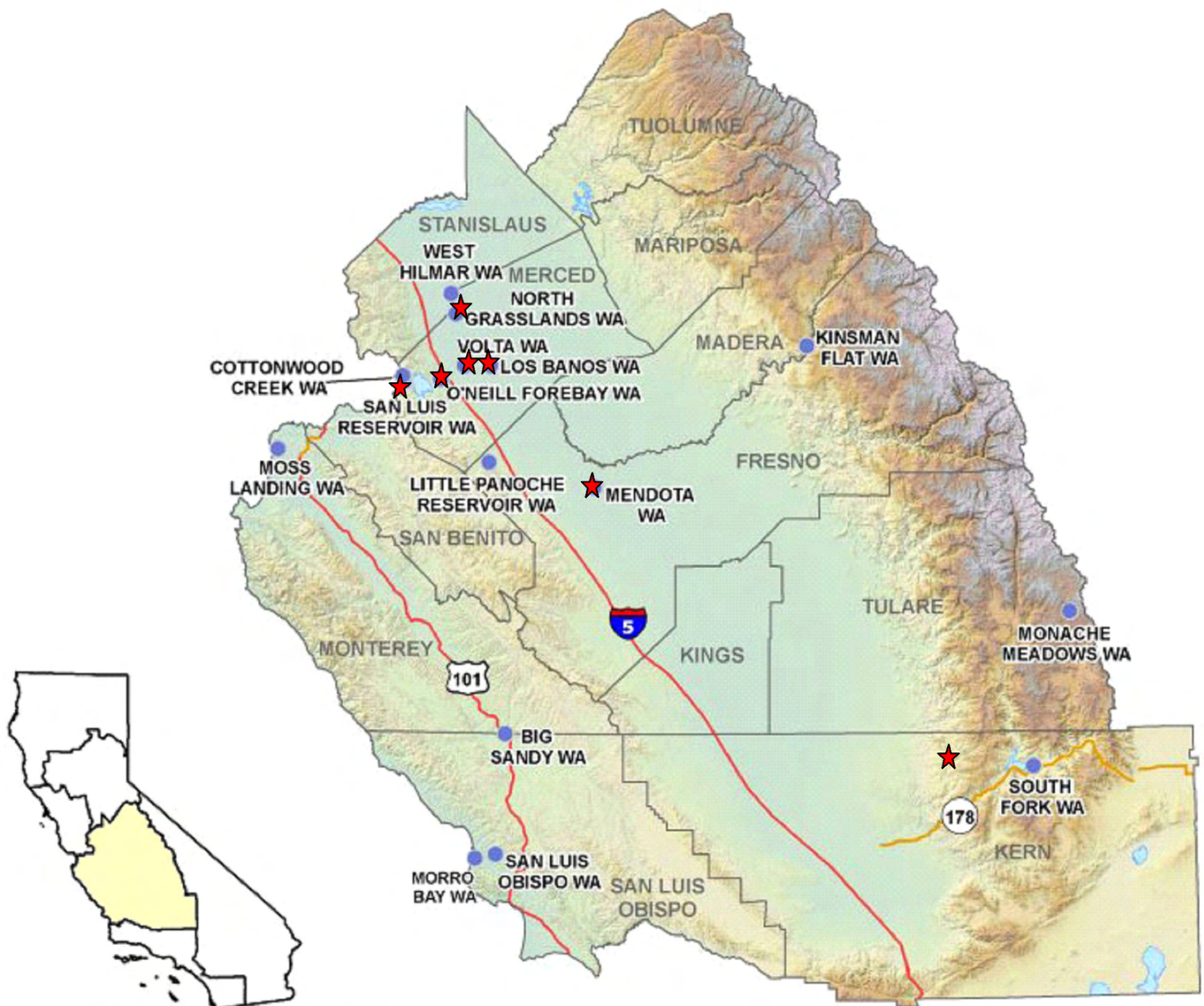


Figure 5. Region 4: Central Region



Locations of M & M Surveys



### E. Region 5: South Coast Region

Region 5 will not be conducting M & M surveys because no priority monitoring lands with concentrations of priority species occur in the region. Regional AI contacts, however, have been established.

### F. Region 6: Inland Deserts Region

The Region 6 approach will consist of surveys encompassing the primary wildlife areas throughout the region (Figure 6). Transects will be completed twice monthly around the Salton Sea. Transects also will be conducted twice monthly at Imperial WA (Wister, Finney Ramer, and Hazard Units), USFWS Sonny Bono NWR Unit 1, and San Jacinto WA.

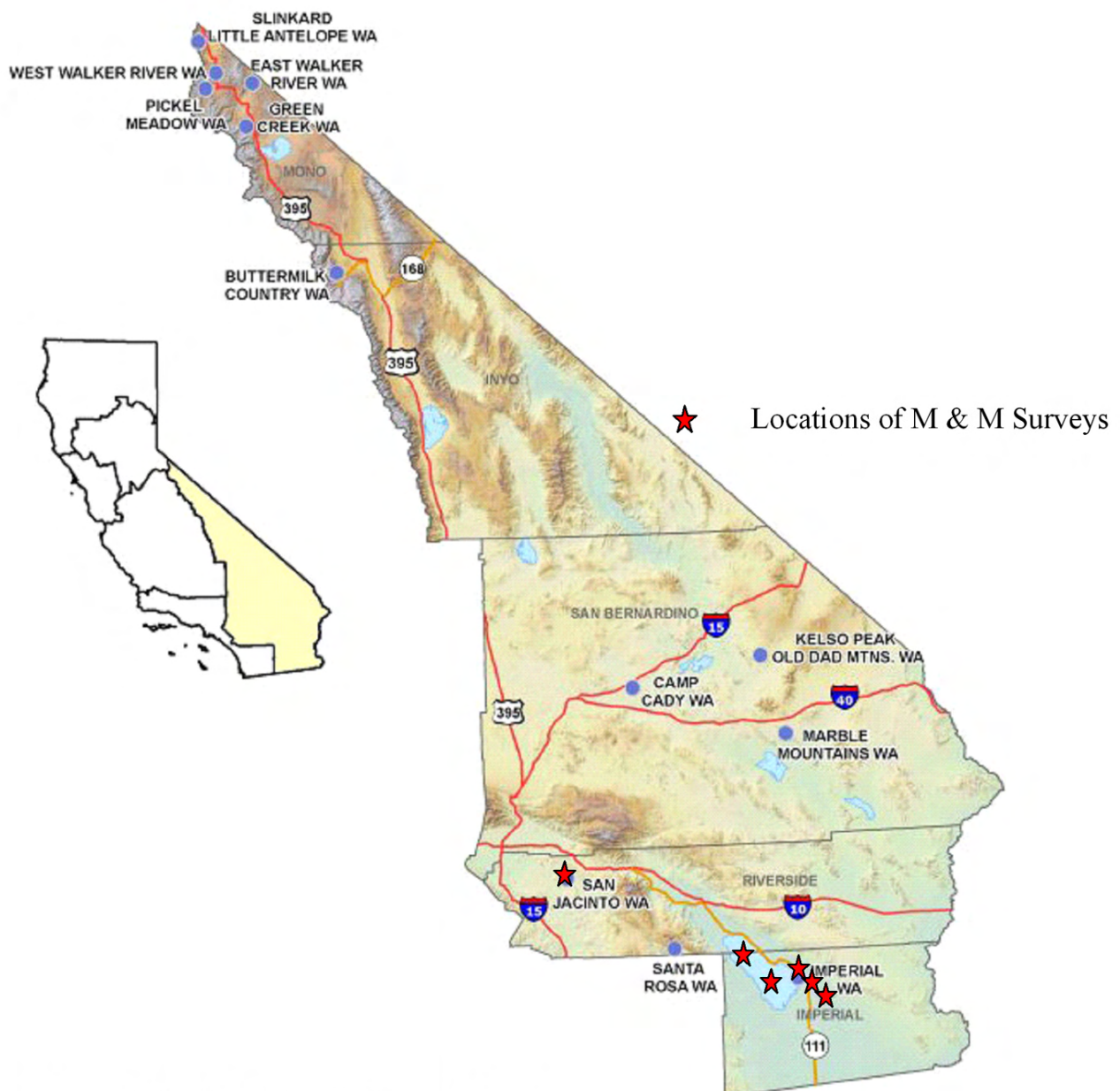


Figure 6. Region 6: Inland Deserts Region

## VI. Regional Contacts

<b>A. Region 1: Northern Region</b>
1. Karen Kovacs, Senior Wildlife Biologist (Lands), (707) 441-5789
a. Dave VanBaren, Assoc. Wildlife Biologist, Butte Valley WA, (530) 260-0782
<b>B. Region 2: North Central Region</b>
1. Paul Raquel, Senior Wildlife Biologist (Wildlife Management), (916) 358-2868
a. Jamie Gamon, Wildlife Biologist, (916) 358-2912
2. Andy Atkinson, Senior Wildlife Biologist (Lands), (530) 846-7500
<b>C. Region 3: Bay Delta Region</b>
1. Laurie Briden, Senior Wildlife Biologist (Wildlife Management), (209) 948-7347
a. Laureen Thompson, (209) 948-7706
2. Larry Wycoff, Senior Wildlife Biologist (Lands), (707) 944-5542
a. Helayna Cooney, Wildlife Biologist, Grizzly Island WA, (707) 425-3828
c. Dave Feliz, Wildlife Biologist, Yolo WA, (530) 757-2431
d. Karen Taylor, Wildlife Biologist, Napa-Sonoma Marshes WA, (707) 944-5567
<b>D. Region 4: Central Region</b>
1. Kevin O'Connor, Senior Wildlife Biologist (Wildlife Mngt), (559) 243-4005 x131
a. Tim Kroeker, Wildlife Biologist, (559) 243-4005
b. Greg Gerstenberg, Associate Wildlife Biologist, (209) 826-3464
2. John Beam, Senior Wildlife Biologist (Lands), (209) 826-7541
a. Evan King, Wildlife Biologist, Mendota WA, (559) 655-4546
b. Rhiannon Klingonsmith, Wildlife Biologist, Los Banos WA, (209) 509-5073
<b>E. Region 5: South Coast Region</b>
1. Kim McKee-Lewis, Senior Environmental Scientist, (760) 918-0771
a. Rebecca Barbosa, Associate Wildlife Biologist, (562) 754-9741
b. Randy Botta, Associate Wildlife Biologist, (760) 751-4023
c. Tim Dillingham, Associate Wildlife Biologist, (858) 467-4204
<b>F. Region 6: Inland Deserts Region</b>
1. Bruce Kinney, Senior Wildlife Biologist, (Inyo and Mono Co.), (760) 872-1171
a. Tim Taylor, Environmental Specialist, Mono County, (760) 932-5749
b. Alisa Ellsworth, Environmental Specialist, Inyo County, (760) 872-1173
2. Dee Sudduth, Senior Wildlife Biologist (San Bernardino, Riverside, Imperial), (619) 468-9231
3. Kim Nicol, Senior Wildlife Biologist (San Bernardino, Riverside, Imperial), (760) 200-9178
a. Steve Gibson, Associate Wildlife Biologist, Imperial WA, (760) 200-9371
b. Scott Sewell, Wildlife Habitat Supervisor, San Jacinto WA, (951) 928-0580
<b>G. Wildlife Investigations Laboratory</b>
1. Steve Torres, Senior Environmental Scientist, Lab Supervisor, (916) 358-1987
2. Dr. Pam Swift, Associate Wildlife Veterinarian, (916) 358-1462
3. Krysta Rogers, Wildlife Biologist (AI), (916) 358-1662

**Appendix 1**  
**DFG WILD BIRD MORTALITY SURVEILLANCE**

Survey Area	Date
Survey Route	
Recorder Name	
Start Time	Stop Time
Total Time Spent	Total Miles Driven
Comments	

<b>Dead Bird Information</b>				
Species	GPS Location	Suspected Cause of Mortality	# Dead Birds	# Sick Birds

**Instructions:**

1. Fill out all the site/time/mileage information, even if no birds are picked up; fill out one card for each route.
2. Use a tally system to record birds observed or picked up.
3. Indicate your best judgment on which avian disease(s) are most likely responsible for the mortality. Leave this entry blank if you are not sure.
4. If significant mortality is observed, complete a *Wildlife Disease Incident and Specimen Submission Form*.
5. Save 3 – 6 fresh carcasses of each species (if possible) for laboratory diagnostics. Each carcass should be placed in a separate plastic bag and labeled with date, location (WA, unit, cell), species, suspected cause of death and whether the bird was euthanized. Carcasses should be kept chilled and shipped or delivered to a diagnostic lab within 24-48 hours. Contact WIL for further information.
6. Fax the completed survey form to WIL at (916) 358-2814 within 48 hours.

**WILDLIFE DISEASE INCIDENT AND SPECIMEN  
SUBMISSION FORM**

**Appendix 2**

**California Department of Fish & Game  
Wildlife Investigations Laboratory  
1701 Nimbus Road, Suite D, Rancho Cordova, CA 95670  
(916) 358-2790 phone / (916) 358-2814 fax**

**Accn #** \_\_\_\_\_

**Rec'd by** \_\_\_\_\_

**Date rec'd** \_\_\_\_\_

**Condition** \_\_\_\_\_

**Comments**  
date ended \_\_\_\_\_

Date of loss \_\_\_\_\_ Duration of Loss: date began \_\_\_\_\_

Nearest town \_\_\_\_\_ County \_\_\_\_\_

Specific location of loss \_\_\_\_\_

Loss first reported by \_\_\_\_\_  
name phone # date

address city zip code

CDFG investigator \_\_\_\_\_

Outline circumstances and suspected cause of loss (additional space on back) \_\_\_\_\_

Wildlife Loss Information			
Species	# Individuals Died	# Individuals Sick	# Individuals at Risk

Wildlife/Specimen Submission Information					
Specimen ID	Species	Sex	Age	Date Died	Specimen Type

**Report Prepared By** \_\_\_\_\_ **Phone** \_\_\_\_\_ **Date** \_\_\_\_\_  
name/title

**Appendix 3**  
**CALIFORNIA DEPARTMENT OF FISH AND GAME**  
**WILDLIFE INVESTIGATIONS LABATORY**  
**1701 NIMBUS ROAD, SUITE D, RANCHO CORDOVA 95670**  
**PHONE (916) 358-2790/FAX (916) 358-2814**

**DEAD WILD BIRD QUESTIONNAIRE**

Date of Report \_\_\_\_\_ Did RP Contact the West Nile Hotline? Yes \_\_\_\_\_ No \_\_\_\_\_  
Name \_\_\_\_\_ Phone number \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ County \_\_\_\_\_  
Location of Loss If Different From Address \_\_\_\_\_  
\_\_\_\_\_

Habitat at mortality event location (orchard, field, road, park, backyard, ranch, marsh, pond, lake, river, coastal shoreline, residential, rural) \_\_\_\_\_  
\_\_\_\_\_

Bird Species Involved	# Sick Birds	# Dead Birds	# Birds at Risk

When did the birds die? (<2 hours, < 24 hours, > 24 hours) \_\_\_\_\_  
Circumstances surrounding the mortality \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Any visible lesions observed by RP? (crusting around eyes, beak or legs; diarrhea; feather loss; lacerations, fractured bones, etc.) \_\_\_\_\_  
\_\_\_\_\_

Any sick birds observed? Yes \_\_\_\_\_ No \_\_\_\_\_ Describe bird's behavior \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

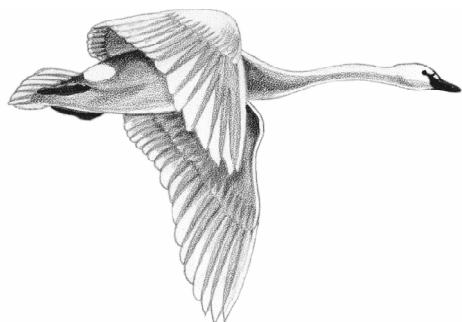
Actions taken by DFG:

- ☐ report only
- ☐ report only
- ☐ initiate investigation/date: \_\_\_\_\_ field investigator: \_\_\_\_\_
- ☐ pickup carcass or sample
- ☐ collect tracheal/pharyngeal/cloacal samples
- ☐ lab submission
- ☐ necropsy; name of lab \_\_\_\_\_
- ☐ receive diagnostic results
- ☐ additional testing \_\_\_\_\_
- ☐ close investigation; date \_\_\_\_\_

Cause of Mortality: presumptive diagnosis/final diagnosis \_\_\_\_\_

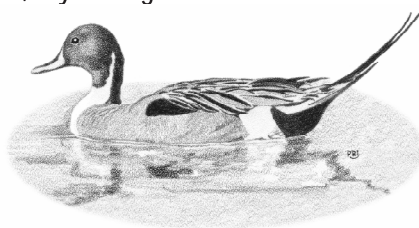
**Fax completed questionnaire to: (916) 358-2814**

## Appendix 4



### **Avian Influenza Workshop** California Department of Fish and Game Wildlife Investigations Laboratory Rancho Cordova August 28, 2007

0800 – 0810	<b>Welcoming Remarks, Announcements, Introductions, Overview of Workshop Agenda</b>
0810 – 0820	<b>Documentation of Avian Training for Federal Government</b> – Jose Beitia
0820 – 0900	<b>Introduction to Wildlife Disease Concepts &amp; Causes of Disease in Wild Birds</b> – Dr. Pam Swift
0900 – 0945 0945 – 1000	<b>Avian Influenza Communication Issues</b> – Alexia Retallack <b>BREAK</b>
1000 – 1045	<b>Overview of Early Detection/Surveillance of Highly Pathogenic Avian Influenza in Wild Birds in California</b> – Krysta Rogers
1045 – 1130	<b>DFG Avian Disease Investigation Personnel Protection Equipment Requirements</b> – John Pronk
1130 – 0100	<b>LUNCH</b>
0100 – 0130	<b>Avian Influenza Funding and Wild Bird Mortality Surveys</b> – Steve Torres
0130 – 0215	<b>Documenting, Reporting and the Investigation of Avian Disease Events</b> – Dr. Pam Swift
0215 – 0230	<b>BREAK</b>
0230 – 0315	<b>Use of Incident Command System (ICS) for Wildlife Disease Response under the National Incident Management System (NIMS)</b> – Alan Nack
0315 – 0400	<b>Specimen Collection, Storage, Packaging and Shipment Demonstration &amp; Discussion</b> – Dr. Pam Swift, Krysta Rogers & Karen Jones



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- I. Introduction to Wildlife Diseases & Disease Investigation**
  - a. Avian Cholera
  - b. Salmonellosis
  - c. Duck Plague (Duck Virus Enteritis)
  - d. Newcastle Disease
  - e. Avian Influenza
  - f. Avian Botulism
- II. Response to Die-offs**
  - a. General Information on the Field Investigations of Wild Bird Mortality
  - b. DFG Response to Wild Bird Mortality Events
- III. National, Pacific Flyway, and California AI Plans**
  - a. CDFG Surveillance & Response Plan
  - b. Strategy for the Pacific Flyway
  - c. An Early Detection System for Highly Pathogenic H5N1 Avian Influenza in Wild Migratory Birds – U.S. Interagency Strategic Plan
- IV. Communications**
  - a. CDFG HPAI H5N1 Communications Plan
  - b. Current Case Law on Media & Law Enforcement Activities
- V. CAL OSHA**
  - a. Cal/OSHA PPE Recommendations
  - b. Employee Health and Safety For AI Surveillance & Control Activities
  - c. Activity versus PPE Requirement Table
- VI. DFG Forms**
  - a. DFG Wildlife Avian Influenza Surveillance Data Sheet
  - b. Avian Influenza Sampling Protocol
  - c. Wildlife Disease Incident and Specimen Submission Form
  - d. Dead Bird Questionnaire
- VII. USDA Information & Forms**
  - a. USDA Wildlife Avian Influenza Surveillance Data Sheet
  - b. USDA/Wildlife Services Procedure Manual (excerpt)
- VIII. NWHC Information and Forms**
  - a. Protocol of Collection, Storage and Shipment of AI Samples
  - b. USGS Specimen History Form
  - c. USGS Event History Form
- IX. CAHFS Forms**
  - a. Flow Chart of Avian Influenza Laboratory Diagnostics
  - b. California Animal Health & Food Safety Lab Submission Form
- X. Shipping and Data Management**
  - a. Specimen Shipment
  - b. Shipping Requirements for Biological Samples
  - c. HPAI Early Detection Data System (HEDDS)